EOEEA and DOER recommend a pilot program that will maximize the number of plug in vehicles in underserved communities (based on tiered income levels). The pilot program should solicit a contractor to provide direct client services to ensure fueling needs are met and that there is adequate financial capability for continued vehicle ownership. Staff suggests using EJ policy criteria of 65% of the estimated state median income (one level for a family and another for individual filers). The program should be run as close as possible to the point of sale to help cover down payment and fees. New or used cars that are leased or purchased vehicles should be eligible.

A small sample size of auto dealers confirm that used PHEV/BEVs is available with costs around $10-15,000. They are very reliable used cars; typically don't require pre-certification but for convenience and safety of participants this check is a good idea. All warrantees (100,000 mile power train) apply. If customer has good credit dealership-enabled financing is readily available with a reasonable down payment. However, $5000 down can mitigate some of the need for good or excellent credit.

Potential Tiers - $275, 000 pilot amount

Gross Annual Income	Filing Status	Program	Vehicle: New /Used	EV	PHEV+	PHEV
Any, but not incl. those in pilot	Any	MOR-EV	New	$2,500	$2,500	$1,500
<= $70,0000	Joint or Household	Pilot	New or Used	$5,000	$5,000	$5,000
<=$35,000	Individual	Pilot	New or Used	$5,000	$5,000	$5,000

Suggested Program Elements

- Geographic Focus – locations with
  - less access to public transit
  - longer (but within BEV distances) commutes to work
  - higher opportunity to charge at home
  - a mix of urban, suburban and rural communities
- Provide direct outreach[1] to identify eligible candidates:
  - Direct mailings
  - Indirect mailings (inserts into existing community development program material)
  - Employers like malls, hospitals with entry level positions and minimum wages
  - New graduates
  - Webinars
  - Phone hotline available during work hours
- Identify and support eligible candidates:
  - Dealerships to help with financing paperwork (identify up front 2-3 dealers but allow any dealer participation)
  - Financial mentoring through existing or new programs
  - Insurance and monthly payments can be met

[1] Direct services should be provided by a community group already involved with eligible applicants. Preference in outreach should be given to the neediest first then phased to higher income communities (for example, colleges).

  - How to use the vehicle and Integrate infrastructure assistance - ability to charge vehicle and maximize e-miles; help drivers think differently about how to "fuel" the car
    - Home charging is safe
    - Employer outreach for state supported workplace charging
    - Work with EVSE operators/vendors to identify opportunities for reduced monthly subscriptions

- Provide Recordkeeping and Feedback:
  - Data collection – VIN, dealer, price paid, income, how vehicles charged, community differences
  - Names of employers so state can follow-up on workplace charging stations
  - Satisfaction, problems, recommendations

Additional Programs, Pilots or Elements to add over time

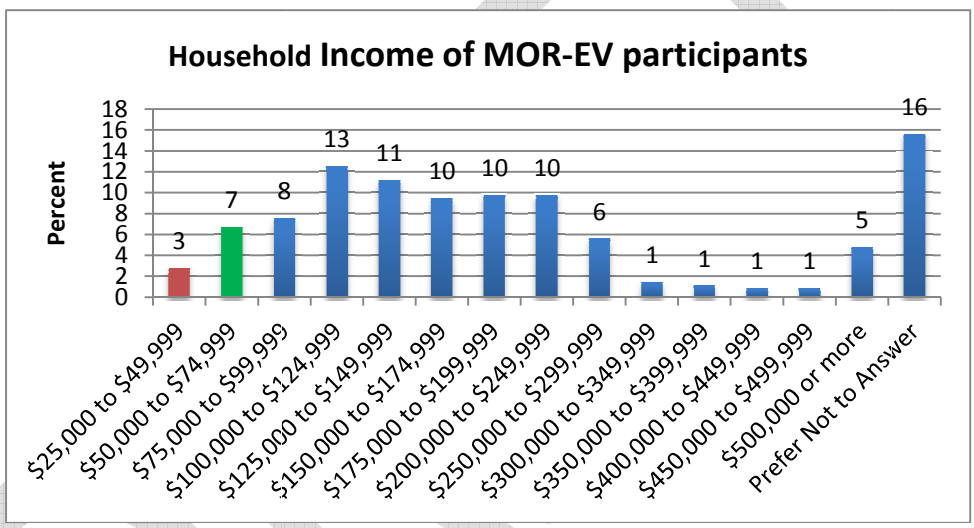
- Ensure that asset limits (1 vehicle up to $10,000 for example) are not exceeded when temporary assistance for needy family benefits could be jeopardized
- More Than Wheels (low cost financing and improving credit) and Good News Garage could participate in the program
- Evaluate pilot for expansion to state-wide program
- Explore adding transportation as an eligible program in IDA (Individual Development Accounts) for those just getting into the job market
- To encourage more BEVs, have PHEVs available to community group to "loan" or swap out
- Car Sharing program (learn from CA) – central parking but consider problem of "un-banked" populations without credit card access
- Trade-in program to get inefficient, dirty cars out of neighborhoods
- Following up with Housing Authorities about what a program could look like

Background Information

MOR-EV Statistics: The Center for Sustainable Energy (CSE) implements the current EV rebate program - $2500 for large battery and fuel cell battery vehicles, $1500 for plug-in electric vehicles with smaller batteries and $750 for electric motorcycles. After purchase or lease of a new plug-in car, the MA resident applies for the rebate. The program (www.mor-ev.org) began in June 2014 and has issued and reserved $2,555,000 (for 1024 cars) with $1.165 million remaining[2]. The program is funded using Regional Greenhouse Gas Initiative (or RGGI) auction funds.

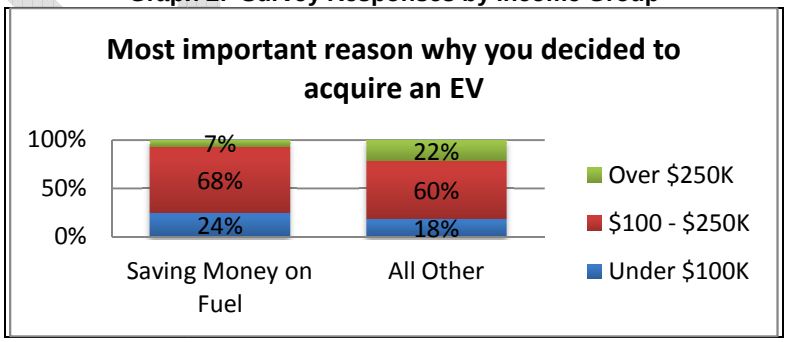
The CSE was asked to conduct an Income Analysis of MOR-EV recipients. The average annual household income of 340 rebate recipients is between $150,000 to $174,999 while less than 10% of "low" income (under $75,000 using income range in the surveys) and 21% of "moderate" income (under $125,000) families received ZEV rebates.

Graph 1: Income Distribution of MA Rebate Recipients



Lower income groups were more likely to respond that their primary motivation to lease or buy a ZEV was to save money on fuel compared to any other reason – highest income groups were 3 times more likely to report another primary motivation for deciding on a ZEV.

Graph 2: Survey Responses by Income Group



[2] Center for Sustainable Energy (2015). MOR-EV Rebate Project, Rebate Statistics. Data last updated July 20, 2015. Retrieved on August 10 from http://energycenter.org/clean-vehicle-rebate-project/rebate-statistics

Defining Tiers based on Income: Our EJ definition of low income is 65% of statewide median income (SMI) which for family of 1 is $35,000 and 4 is $70,000 (rounded numbers). The community action programs for example have prequalified 200,000 people eligible for LIHEAP programs so they are a natural partner for this pilot. Their fuel assistance programs are set at 60% of SMI ($62,700 for family of 4) with tiers relating to the federal poverty level. Chapter 40B housing defines low income as up to 80% SMI. The DOER/CEC solar loan program definition of moderate income is less than 120% SMI or $65,200 for a 1 person family. CA ZEV retirement and replacement incentives are aimed at low income families (less than 225% of Federal Poverty Level) making less than $53,660 and moderate income (less than 300%) or $71,550.

ZEV Costs – Ownership, Lease and Operating Costs: ZEVs offer several benefits in addition to urban air quality benefits and lower GHG emissions that make them desirable to own or lease instead of conventional vehicles. ZEVs have significant cost benefits besides lower operating costs - no conventional transmission or fuel injection systems to maintain, do not require oil changes, and have regenerative braking systems that greatly prolong the life of conventional brakes (reducing brake repair and replacement costs).

We have observed that new ZEV purchase prices are coming down. Prices of vehicles with rebates range from $17,296 to $49,417[3] with the average ZEV purchase price (for vehicle models under $60,000) of $31,176. Used ZEV prices are extremely reasonable. California is sponsoring research on the secondary market but three year old Chevy Volts (a Plug-In EV) were selling for an average of $13,000 at auction and Nissan Leafs (a full Battery EV or BEV) at about $10,000 - $15,000.[4]

The National Bureau of Labor Statistic's Consumer Expenditure survey[5] concludes that transportation is the second highest American household expenditure with households at or below poverty levels spending a higher proportion of their income on mobility. Age and low fuel efficiency contribute to this problem. Their statistics document that the average household expenditure for transportation is about 15% gross annual income. However, if the household is in auto-dependent "exurbs", 25% of income is spent on transportation costs[6].

ZEV Affordability Analysis

Using the 15% of income as a basis for calculating costs, Table 1 shows the affordability gap for ZEVs. We need to speak to advocates working with interested individuals to determine feasibility of making these cars affordable.

Table 1 - Calculated ZEV Affordability based on 15% of Proposed Low Income Definition

Vehicle Costs	Tier 1 – single person household (15% of 35,000 or $5,250)	Tier 2 – 4-person household (15% of 68,000 or $10,200)
Used EV - $10,000	-$4,750	-$200
Used PHEV - $13,000	-$7,750	-$2,800
New Mitsubishi i-MieV $23,622	-$18,372	- $13,422

[3] Eliminating vehicles with average purchase price of over $60,000 (Cadillac ELR, Tesla, Porsche and BMW i8)
[4] Wall Street Journal, Feb 26, 2015 referencing figures from NADA Used Car Guide and Edmunds.com; conversations with MA dealers
[5] BLS Report 1046, Consumer Expenditures in 2012, March 2014.
[6] FHWA Transportation and Housing Costs, http://www.fhwa.dot.gov/livability/fact_sheets/transandhousing.cfm

Besides used vehicle purchases, leases on EVs are an affordable option. For example, with a $2500 down payment, people with good credit can lease a Nissan Leaf for around $300/month – well below the budget estimated (monthly transportation budget Tier 1 $438 and Tier 2 is $850).

An additional benefit of ZEV ownership is the lowered operating costs of the vehicle.

Calculated ZEVs Monthly Operating Costs

Monthly	Model Year 2003[7]	ZEV	Monthly Cost Savings
Fuel Cost[8]	125	28	
Maintenance/Repair[9]	83	38	
Avg. Operating costs	208	66	$142/month

[7] Average age of cars in US 12 years old; average 16 mpg US DOT Bureau of Transportation Statistics.
[8] DOER fuel cost: $2.40/gallon; 10,000 miles/year or 833 miles/month and EV 35 Kwh/100; average retail electricity 10cents
[9] CARB Edmunds.com "True Cost to Own" calculator adjusted for 10,000 mi/year – MY 2007 $73 and MY 1995 $93